

CLAIMS

1. Method to manufacture an electrically driven air pump (10), in particular a method to manufacture a secondary air pump (10) for a motor vehicle with an internal combustion engine, wherein the air pump (10) features a housing (12), in which a pump mechanism (13) with at least one fan wheel (36, 38) as well as an electric motor (16) driving the at least one fan wheel (36, 28) are arranged, characterized in that the air pump (10) is counterbalanced with the electric motor (16) built into the housing (12) via balancing in at least two planes (A, B) that are spaced apart axially.
2. Method to manufacture an electrically driven air pump according to Claim 1, characterized in that after assembly of the at least one fan wheel (36, 38) on a shaft (23) of the electric motor (16), with a built-in electric motor (16), the air pump (10) is balanced by balancing on a fan wheel (36, 38) and balancing on a balancing plate (50) that is spaced apart axially from the fan wheel (36, 38).
3. Method to manufacture an electrically driven air pump according to Claim 2, characterized in that the air pump (10) is balanced via material removal on at least one fan wheel (36, 38) and/or material removal on the balancing plate (50).
4. Method to manufacture an electrically driven air pump according to Claim 1, 2 or 3, characterized in that the balancing plate (50) is attached on the side of the shaft (13) of the electric motor (16) facing away from the pump mechanism (13).
5. Method to manufacture an electrically driven air pump according to one of Claims 1 through 4, characterized in that the electric motor (16) is isolated from the pump housing (12) via elastic means (24).

6. Method to manufacture an electrically driven air pump according to Claim 5, characterized in that when balancing the air pump (10), the balancing rpm and/or the manner of incorporating the balancing is coordinated with the natural frequency of the isolation means (24).
7. Method to manufacture an electrically driven air pump according to one of Claims 1 through 6, characterized in that after counterbalancing the air pump (10), the pump housing (12) is closed by a cover (20) on the fan wheel side and a cover (22) on the motor side.
8. Electrically driven air pump (10), in particular a secondary air pump (10) for a motor vehicle with an internal combustion engine, with a housing (12) and an electric motor (16) integrated into the housing (12), which electric motor is supported in the pump housing (12) via elastic means (24), as well as with a pump mechanism (13) with at least one fan wheel (36, 38) fastened on a shaft (23) of the driving motor (16), characterized in that a balancing plate (50) is arranged in the area of the end of the drive shaft (23) of the electric motor (16) facing away from the pump mechanism (13).
9. Electrically driven air pump according to Claim 8, characterized in that the balancing plate (50) is composed at least partially of a metal.
10. Electrically driven air pump according to Claim 8 or 9, characterized in that the balancing plate (50) is arranged on the shaft (23) of the driving motor (16) outside a motor housing (17, 30).
11. Electrically driven air pump according to one of Claims 8 through 10, characterized in that the diameter of the balancing plate (50) is smaller than the diameter of the rotor (19) of the electric motor (16).
12. Electrically driven air pump according to one of the preceding Claims 8 through 11, characterized in that the elastic means (24) to support the electric motor (16) seal the pump mechanism (13) of the air pump (10) vis-à-vis the motor part (15).

13. Electrically driven air pump according to one of the preceding Claims 8 through 12, characterized in that the elastic means (24) to support the electric motor (16) are embodied in the form of two elastomer rings (26, 28) that are spaced apart axially.
14. Electrically driven air pump according to Claim 13 characterized in that the elastomer rings (26, 28) are each arranged between the pole housing (30) of the driving motor (16) and the pump housing (12) of the air pump (10).
15. Electrically driven air pump according to Claim 13 or 14, characterized in that the elastomer rings (26, 28) are arranged on the front sides of the pole housing (30) of the driving motor (16).
16. Electrically driven air pump according to one of Claims 13 through 15, characterized in that the elastomer rings (26, 28) are embodied as axial-radial supporting rings.
17. Electrically driven air pump according to one of Claims 13 through 16, characterized in that a sealing lip (27) is embodied on the elastomer ring (26) on the fan wheel side.
18. Electrically driven air pump according to one of the preceding Claims 13 through 17, characterized in that means to support the torque of the driving motor (16) are embodied at least on one elastomer ring (26, 28).
19. Electrically driven air pump according to one of Claims 8 through 18, characterized in that the pump housing (12) features a cover (20) on the fan wheel side and a cover (22) on the motor side.